

REMARKS/ARGUMENTS

Claims 8-17 are pending in this application. By this Amendment, Applicant amends Claim 8.

Applicant appreciates the Examiner's indication that Claims 12 and 13 are allowed.

Claims 8-10, 14, 15, and 17 were rejected under 35 U.S.C. § 102(b) as being anticipated by Takamine (U.S. 6,583,691). Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Takamine '691 in view of Takamine et al. (U.S. 6,781,478). Claim 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Takamine in view of Funasaka (U.S. 7,245,193). Applicant respectfully traverses the rejections of Claims 8-11 and 14-17.

Claim 8 has been amended to recite:

An elastic wave filter comprising:
two longitudinally coupled resonator type elastic wave filter elements, each longitudinally coupled resonator type elastic wave filter element including three IDTs arranged on a piezoelectric substrate in a transmitting direction of an elastic wave; wherein
two of the three IDTs of one longitudinally coupled resonator type elastic wave filter element are cascade connected to two of the three IDTs of the other longitudinally coupled resonator type elastic wave filter element;
each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT; and
in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT. (emphasis added)

The Examiner alleged that Takamine teaches all of the features recited in claim 8, including "the electrode fingers disposed in the central portion of at least one or two

of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers disposed in the central portion of a remaining IDT that is not cascade connected (col. 8, lns 40-53 et al. where the IDT end finger portions are narrow compared to the rest of the IDT)."

Applicant's Claim 8 has been amended to recite the features of "each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT" and "in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT." Support for these features is found, for example, in paragraphs [0062] to [0065] of Applicant's originally filed Substitute Specification and in Fig. 3 of Applicant's originally filed drawings.

Col. 8, Line 40 to col. 9, line 4 of Takamine '691 disclose:

In the surface acoustic wave filter portion 3, the IDT's 5 to 7 have narrow pitch electrode finger portions in which the electrode finger pitches are relatively narrow. For example, electrode fingers 5a and 6a are adjacent to each other in the area where the IDT's 5 and 6 are adjacent to each other. Several electrode fingers of the IDT 5 including the electrode finger 5a, arranged from the end thereof on the IDT 6 side, define a narrow pitch electrode finger portion N1 in which the electrode finger pitches are narrow as compared with the pitches of the remaining electrode fingers of the IDT 5. That is, in the IDT 5, the electrode finger pitch in the narrow pitch electrode finger portion N1 is set to be narrower than the electrode finger pitch in the remaining electrode finger portion.

Similarly, in the IDT 6, several electrode fingers thereof including the electrode finger 6a, arranged from the end thereof on the IDT 5 side define a narrow pitch electrode finger portion N2.

On the other hand, in the area where the IDT's 6 and 7 are adjacent to each other, the electrode finger 6b of the IDT 6 and the electrode finger 7a of the IDT 7 are adjacent to each other. Several electrode fingers of the

ITD 6 including the electrode finger 6b at the end thereof on the IDT 7 side define a narrow pitch electrode finger portion N3. Thus, the narrow pitch electrode finger portions N2 and N3 are provided on both of the sides in the surface acoustic wave propagation direction of the IDT 6. The electrode finger pitches in the narrow pitch electrode finger portions N2 and N3 are narrow as compared with the electrode finger pitch of the electrode finger portion in the center of the IDT 6. The electrode finger pitches of the narrow pitch electrode finger portions N2 and N3 are set to be the same.

In other words, at best, Takamine '691 merely teaches that the IDTs 5, 6, and 7 respectively include narrow pitch electrode finger portions N1, N2, and N3 provided at end portions of the IDTs 5, 6, and 7 and having electrode finger pitches that are smaller than those of the remaining portions of the IDTs 5, 6, and 7.

Takamine '691 fails to teach or suggest that the electrode finger pitch of the remaining portion of any one of the IDTs 5, 6, and 7 could or should be smaller than an electrode finger pitch of the remaining portion of another one of the IDTs 5, 6, and 7. In fact, Takamine '691 specifically teaches that the pitch $\lambda/1$ of the remaining portions of each of the IDTs 5, 6, and 7 other than the narrow pitch electrode finger portions N1, N2, and N3 is, and must be, **the same**. That is, all of the electrode fingers in the remaining portions of each of the IDTs 5, 6, and 7 of Takamine '691 are arranged at the **same pitch**, and none of the electrode fingers in the remaining portions of any of the IDTs 5, 6, and 7 of Takamine '691 are arranged at a pitch that is smaller than the pitch of any of the other electrodes in the remaining portions of any of the IDTs 5, 6, and 7 of Takamine '691 (see, for example, col. 9, lines 17-40 of Takamine '691).

Thus, Takamine '691 certainly fails to teach or suggest the features of "each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT" and "in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers

disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT” as recited in Applicant’s Claim 8.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 8 under 35 U.S.C. § 102(b) as being anticipated by Takamine ‘691.

In addition, Applicant respectfully submits that it would not have been obvious to modify the SAW filter of Takamine ‘691 so as to include the features of “each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT” and “in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT” as recited in Applicant’s Claim 8 because, as noted above, Takamine ‘691 specifically teaches that the pitch λ_{l1} of the remaining portions of each of the IDTs 5, 6, and 7 other than the narrow pitch electrode finger portions N1, N2, and N3 is, and must be, **the same**.

In other words, Takamine ‘691 teaches away from the features of “each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT” and “in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers

disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT” as recited in Applicant’s Claim 8.

The Examiner is reminded that it is error to find obviousness where references diverge and teach away from the invention at hand. W.L. Gore & Assoc. v. Garlock Inc., 220 USPQ 303, 311 (Fed. Cir. 1983).

The Examiner relied upon Takamine et al. ‘478 and Funasaka to allegedly cure deficiencies of Takamine ‘691. However, Takamine et al. ‘478 and Funasaka clearly fail to teach or suggest the features of “each respective IDT of the three IDTs includes a narrow pitch electrode finger portion at each end portion of the respective IDT that is disposed adjacent to a neighboring one of the three IDTs, the narrow pitch electrode finger portion having a pitch that is smaller than a pitch of a remaining portion of the respective IDT” and “in at least one of the longitudinally coupled resonator type elastic wave filter elements, the electrode fingers disposed in the remaining portion of at least one of the IDTs that are cascade connected are arranged at a pitch that is smaller than a pitch of the electrode fingers disposed in the remaining portion of a remaining IDT that is not cascade connected, such that a frequency of a conductance peak in said at least one of the cascade connected IDTs is higher than a frequency of a conductance peak in the remaining IDT” as recited in Applicant’s Claim 8. Thus, Takamine et al. 478 and Funasaka fail to cure the deficiencies of Takamine ‘691 described above.

Accordingly, Applicant respectfully submits that Takamine ‘691, Takamine et al. ‘478 and Funasaka, applied alone or in combination, fail to teach or suggest the unique combination and arrangement of features recited in Applicant’s Claim 8.

In view of the foregoing amendments and remarks, Applicant respectfully submits that Claim 8 is allowable. Claims 9-11 and 14-17 depend upon Claim 8, and are therefore allowable for at least the reasons that Claim 8 is allowable. Claims 12 and 13 are allowable as indicated by the Examiner.

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In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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/Christopher A. Bennett #46,710/
Attorneys for Applicant

KEATING & BENNETT, LLP
1800 Alexander Bell Drive, Suite 200
Reston, VA 20191
Telephone: (571) 313-7440
Facsimile: (571) 313-7421

Joseph R. Keating
Registration No. 37,368

Christopher A. Bennett
Registration No. 46,710